SIM CARD CONNECTORS

SIM (Subscriber Identity Module) and UIM (Universal Identity Module) cards are widely used in a variety of mobile applications, including, billing, security and number storage purposes in mobile devices. The SIM card parameters are defined by ISO, ETSI and GSM standards.

TE Connectivity’s (TE’s) outstanding technological capability delivers a high comfort for the end customer and great durability and longevity of the SIM connectors. In addition, TE has the ability to fabricate very high volume products in a cost-efficient, lean manufacturing process. The huge array of products, combined with TE’s ability to redesign existing products to customer requirements, allow TE to be a reliable source for SIM and UIM card connectors.

FEATURES

• Large portfolio covering several styles and card sizes
• Connectors optimized for reliability (i.e. by spherical contact points increasing hertz stress, pre-loaded contacts and anti-retention features in the contacts.)
• The SIM connector series offers the best possible design freedom; many products are even scalable in height within the same form factor
• Best possible applied cost by fully-automated processing

BENEFITS

• Large, versatile portfolio offers the best product closest to your need
• Highly reliable connector technology helps customers reduce production line defect rates - ultimately reducing costs for quality control and service
• Very broad design freedom creates optimal possibilities for the design engineer to match the device’s requirements
• Fully-automated processing leads to stable quality
• Global footprint means enhanced support for all regions

APPLICATIONS

• Mobile phones
• Tablets
• Personal computers
• Ultraportable devices
• Data cards
• Portable GSM modems
• Servers

www.te.com/products/SIMCardConnectors
TE Offers a Variety of SIM Card Connectors

Push-pull Type
- Card guidance and card stops provides fixation of the SIM card in X, Y and Z direction
- Card is typically located inside the device shell. Consumer must open the device shell to extract the card, and must insert and eject card manually
- Full single clip, provides shielding, and prevents card bending. This ensures a stable connection with all card types
- Components underneath the SIM card are possible (optional)

Block Type
- Basic SIM connector without enhanced features in combination with an efficient manufacturing process leads to an extremely cost-effective component
- Anti-lifting contact prevents the contact from being accidentally lifted, reducing the risk of damaged contacts
- Two (2) directional mating allows for card insertion from two directions

Push-push Type
- Push to insert, push to eject mechanism provides enhanced card handling for the end user
- Push-push type connectors are typically used under the battery cover or behind a door at the device exterior
- The card detection switch senses card removal
- The connector reduces the risk of inserting the card in the wrong direction

Tray Type
- Tray type SIM connectors are typically used on the exterior of a device. The tray forms a unity with the device covers
- Tray can be fully separated from the body, allowing for easy card handling by the end user
- The connector reduces the risk of inserting the card in the wrong direction
- The card detection switch senses card removal

Combo Type
- Integrated card connector to support two cards: micro SD and micro SIM
- The stacking of two card connectors reduces the connector layout on the PCB
- There is a detect switch for micro SD
- Two types of insertion exist: cross insertion type and inline insertion type
# SIM Card Connectors

Size comparison: Mini SIM (2FF) vs Micro SIM (3FF) vs Nano SIM (4FF)

![Size comparison: Mini SIM (2FF) vs Micro SIM (3FF) vs Nano SIM (4FF)](image)

*FF = Form Factor

## Product Offerings

<table>
<thead>
<tr>
<th>P/N</th>
<th>Picture</th>
<th>Height Range</th>
<th>Length x Width</th>
<th>Description</th>
<th>Features</th>
<th>Benefits</th>
<th>Status</th>
<th>Applicable SIM Size</th>
</tr>
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<tbody>
<tr>
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<tr>
<td><strong>Push-push Type</strong></td>
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<tr>
<td>2174918-1</td>
<td><img src="image" alt="Image" /></td>
<td>1.40</td>
<td>26 x 17</td>
<td>Push-push SIM, super low profile</td>
<td>• Push-push function allows SIM card ejection by connector itself</td>
<td>• Easy to handle SIM card</td>
<td>MP GD</td>
<td>Mini SIM / 2FF</td>
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<td>• Lower profile</td>
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<td>• Dual slanted contacts</td>
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<td>• Card detection switch</td>
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<tr>
<td>2174803-2</td>
<td><img src="image" alt="Image" /></td>
<td>1.27</td>
<td>15.98 x 15.1</td>
<td>Ultra low profile push-push</td>
<td>• Push-push function allows SIM card ejection by connector itself to help the end customer handle SIM card easily and reduces risk of inserting the card in the wrong direction, minimizes card jamming</td>
<td>• Low profile saves space</td>
<td>MP SH</td>
<td>Micro SIM / 3FF</td>
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<tr>
<td>2822541-1</td>
<td><img src="image" alt="Image" /></td>
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<td>• Dual slanted contacts</td>
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<td>• Card detect switch is available</td>
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<td></td>
<td>• 2822541-1 applies an anti-buckling feature to original connector</td>
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<td><strong>Push-pull Type</strong></td>
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<tr>
<td>&quot;-2042647-*&quot;</td>
<td><img src="image" alt="Image" /></td>
<td>1.8 – 2.0</td>
<td>15.5 x 10</td>
<td>Scalable shielded SIM</td>
<td>• Shielded</td>
<td>• Shield protects against radio interference</td>
<td>MP SH</td>
<td>Mini SIM / 2FF</td>
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<tr>
<td>&quot;-2042920-*&quot;</td>
<td><img src="image" alt="Image" /></td>
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<td>• Holes for additional components under the connector</td>
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<td>• Test holes for automatic inline testing</td>
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<td><strong>Push-pull Type</strong></td>
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<tr>
<td>&quot;-1551663-*&quot;</td>
<td><img src="image" alt="Image" /></td>
<td>1.8 – 2.0</td>
<td>15.5 x 10</td>
<td>Narrow shield version</td>
<td>• Shield protects against radio interference</td>
<td>• Holes under the connector save space</td>
<td>MP SH</td>
<td>Mini SIM / 2FF</td>
</tr>
</tbody>
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(dimensions:mm)
# SIM Card Connectors

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<tbody>
<tr>
<td>1932766-1</td>
<td><img src="small.png" alt="Image" /></td>
<td>1.5</td>
<td>17.6 x 16.1</td>
<td>SIM 1.5mm height</td>
<td><strong>Features</strong></td>
<td><strong>Benefits</strong></td>
<td>MP GD</td>
<td>Mini SIM / 2FF</td>
</tr>
<tr>
<td>1932768-1</td>
<td><img src="medium.png" alt="Image" /></td>
<td>1.95</td>
<td>16.3 x 14.8</td>
<td>Super low profile SIM with flange</td>
<td><strong>Features</strong></td>
<td><strong>Benefits</strong></td>
<td>MP SH</td>
<td>Micro SIM / 2FF</td>
</tr>
<tr>
<td>2199337-5</td>
<td><img src="large.png" alt="Image" /></td>
<td>1.18</td>
<td>14.1 x 13.3</td>
<td>Anti-buckling ultra low profile push pull</td>
<td><strong>Features</strong></td>
<td><strong>Benefits</strong></td>
<td>MP SH</td>
<td>Micro SIM / 3FF</td>
</tr>
<tr>
<td>2199003-2</td>
<td><img src="small.png" alt="Image" /></td>
<td>2.5</td>
<td>17.75 x 14.0</td>
<td>Micro SIM + micro SD combo 90 degree</td>
<td><strong>Features</strong></td>
<td><strong>Benefits</strong></td>
<td>MP GD</td>
<td>Micro SIM / 3FF &amp; micro SD</td>
</tr>
<tr>
<td>2199260-5</td>
<td><img src="medium.png" alt="Image" /></td>
<td>2.12</td>
<td>16.9 x 14.31</td>
<td>Micro SIM + micro SD Combo Inline</td>
<td><strong>Features</strong></td>
<td><strong>Benefits</strong></td>
<td>MP GD</td>
<td>Micro SIM / 3FF &amp; micro SD</td>
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*Combination Type Connector for Micro SIM + Micro SD*
## SIM Card Connectors

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<th>P/N</th>
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<th>Features and Benefits</th>
<th>Status</th>
<th>Applicable SIM Size</th>
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</table>
| 2290741-1 | 3-in-2 Card Connector | • Accepts either two nano SIM/4FF cards, or one nano SIM/4FF and one micro SD card  
• Innovative anti-buckling contact design provides a more robust solution  
• Helps prevent damage to contacts during card insertion and removal  
• Proven pin-push type solution with mechanical lock function  
• Tray detect switch helps prevent malfunction  
• Space-efficient design with two cavities  
• About 20% PCB savings over other combo type card connectors  
• Better coplanarity control helps ensure fewer defects during the manufacturing process and makes the soldering process easier | MP SH  | Nano SIM / 4FF & micro SD |
| 2295782-1 | 2-in-1 Card Connector | • Low profile design 1.35mm  
• Card insertion direction is side entry type  
• Good click feeling to insert tray and enough tray eject length by pin insertion operation  
• Tray detect switch is available  
• Anti-buckling contact minimizes contact deformation  
• Both single card type & dual card type are available  
Contact a TE Representative for further details and other tray type requests. | MP GD  | Nano SIM / 4FF |
| 2286990-1 | Nano SIM tray side entry | • Low profile design, all product HSG height is 0.3mm  
• Minimize the connector layout to minimize the space  
• Flexible layout to use several cards in one application  
• Both block SIM connectors can connect to mini SIM/2FF, micro SIM/3FF and nano SIM/4FF  
• The card position can be fixed on the application side or by adding a shell as another component  
• Anti-buckling contact is available for insertion/extraction direction | MP SH  | Mini SIM / 2FF or Micro SIM / 3FF or Nano SIM / 4FF |
| 2286237-1 | Block SIM Normal Entry | • Low profile design, all product HSG height is 0.3mm  
• Minimize the connector layout to minimize the space  
• Flexible layout to use several cards in one application  
• Both block SIM connectors can connect to mini SIM/2FF, micro SIM/3FF and nano SIM/4FF  
• The card position can be fixed on the application side or by adding a shell as another component  
• Anti-buckling contact is available for insertion/extraction direction | MP GD  | Mini SIM / 2FF or Micro SIM / 3FF or Nano SIM / 4FF |
| 2287217-1 | Block SIM Side Entry | • Low profile design, all product HSG height is 0.3mm  
• Minimize the connector layout to minimize the space  
• Flexible layout to use several cards in one application  
• Both block SIM connectors can connect to mini SIM/2FF, micro SIM/3FF and nano SIM/4FF  
• The card position can be fixed on the application side or by adding a shell as another component  
• Anti-buckling contact is available for insertion/extraction direction | MP GD  | Micro SD |

(dimensions:mm)
Frequently Asked Questions

Question 1
How do I decide which type of SIM connector to choose?
Answer 1
The major difference in choosing between SIM connectors depends on the design of the customer device. Push-push or tray type SIM connectors allow users to extract the SIM card from the external portion of the device. Push-pull or block type connectors require users to open the back shell of the device and manually pull out the SIM card.

Question 2
What is the purpose of an 8 position SIM connector?
Answer 2
The extra two positions support an additional function like electronic payment.

Question 3
What is the benefit of dual-slanted contact performance?
Answer 3
The dual-slanted design minimizes contact jam issues and creates a stronger mating performance, as demonstrated during the drop test.

Question 4
When should I use a micro SIM connector?
Answer 4
When the device requires the use of a micro SIM card.

Question 5
What’s the scalable height?
Answer 5
The scalable height is found when the SIM card connector is scalable by a different P/N, but the connector footprint stays the same. The benefit is enabling the customer to swap the product easily when a design change occurs, thereby reducing the lead-time of TTM (Time To Market), TTV (Time To Value) and design cost.

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Latin/S. America: 54.0.11.4733.2200
Germany: 49.0.6251.133.1999
UK: 44.0.800.267666
France: 33.0.1.3420.8686
Netherlands: 31.0.73.6246.999
China: 86.0.400.820.6015

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